

CLAIMS

1. A process for preparing inorganic fine particles, which comprises heating and applying impulse waves to a raw material liquid.

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2. The process for preparing inorganic fine particles of Claim 1, wherein said impulse waves are ultrasonic waves.

3. The process for preparing inorganic fine particles of Claim 1 or 2, wherein heating and application of impulse waves to said raw material liquid is conducted by contacting said raw material liquid with pulse combustion gas.

4. The process for preparing inorganic fine particles of Claim 3, wherein said pulse combustion gas has frequency range of 50 to 1000 Hz, pressure amplitude of at least $\pm 0.2 \text{ kg/cm}^2$, sound pressure of 100 to 200 decibel and contact gas temperature of 100 to 1000°C.

5. The process for preparing inorganic fine particles of Claim 1, 2, 3 or 4, wherein said raw material liquid is a mixture of a solvent and an inorganic metal compound and/or a solution of an inorganic metal compound.

6. The process for preparing inorganic fine particles of Claim 5, wherein said mixture of a solvent and an inorganic metal compound is a mixture of a solvent and an inorganic metal hydrate insoluble in said solvent and the obtained inorganic particles are fine particles of

inorganic metal hydrate.

7. The process for preparing inorganic fine particles of Claim 6, wherein said mixture of a solvent and an inorganic metal hydrate insoluble in said solvent contains at least one of a slurry of zirconia hydrate fine particles, a slurry of ceria hydrate fine particles, a slurry of titania hydrate fine particles, a slurry of fine particles of a hydrated silicic compound and a slurry of alumina hydrate fine particles.

8. The process for preparing inorganic fine particles of Claim 6 or 7, wherein said mixture of a solvent and an inorganic metal hydrate insoluble in said solvent comprises a neutralized hydroxide, a neutralized coprecipitated hydroxide, a hydrolyzate or a composite thereof.

9. The process for preparing inorganic fine particles of Claim 6, 7 or 8, wherein said fine particles of inorganic metal hydrate in said mixture of a solvent and an inorganic metal hydrate insoluble in said solvent are 0.01 to 50 μm .

10. The process for preparing inorganic fine particles of Claim 5, wherein said solution of an inorganic metal compound is an aqueous solution of a water-soluble inorganic metal salt and the obtained inorganic particles are fine particles of inorganic metal salt or modifications thereof.

11. The process for preparing inorganic fine particles of Claim

10, wherein said aqueous solution of a water-soluble inorganic metal salt contains at least one of an aqueous solution of zirconyl chloride, an aqueous solution of zirconyl sulfate, an aqueous solution of zirconyl nitrate, an aqueous solution of cerium chloride, an aqueous solution of titanium tetrachloride, an aqueous solution of titanium trichloride, an aqueous solution of aluminum chloride, an aqueous solution of magnesium chloride, an aqueous solution of calcium chloride or an aqueous solution of a silicic compound.

10 12. A process for preparing inorganic raw material powder, which comprises calcinating and pulverizing the inorganic particles obtained by the process of Claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11.

15 13. An inorganic fine particle having a ratio of arithmetic standard deviation to arithmetic average size found from particle size distribution of secondary particle size measured by an optical method of at most 0.8.

20 14. An inorganic raw material powder having a ratio of arithmetic standard deviation to arithmetic average size found from particle size distribution of secondary particle size measured by an optical method of at most 0.6.

25 15. The inorganic fine particle of Claim 13, wherein said arithmetic average size of secondary particles is 0.1 to 20 μm .

16. The inorganic raw material powder of Claim 14, wherein

said arithmetic average size of secondary particles is 0.1 to 1 μm .